WRS.

10/12/58

Notes on Auxiliary Power Pack and Relay for [redacted]: 25X1

1. Wire both audio leads directly to external terminal block.

2. The recorder that is used in place of the Minifon will have its own power.

3. Our 15-volt supply (silvered) need not be brought out to terminal block.

4. The relay coil will not be brought out to the terminal block.

5. Bring ground on common to terminal block.

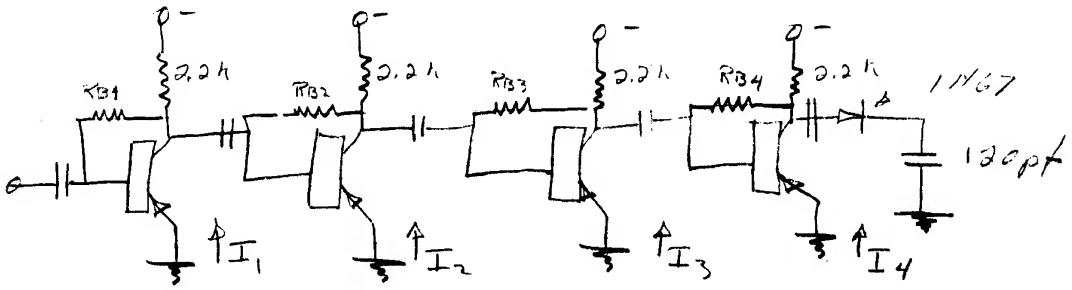
6. Package configuration: Two rows of five cells each with plug, relay and terminal block on end if practical.

NFG. NOT included

WCP

23 May 1956

VIDEO AMPLIFIER



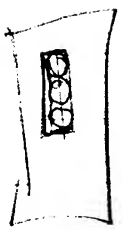
Gain: 100 μv to .8 volts at 80 kc

Bandwidth: ~ 380 kc

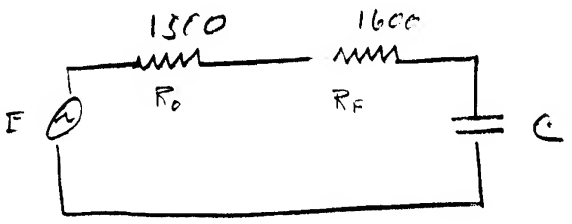
Output impedence of final stage ~ 1500 Ω

$R_{B1} = R_{B2} = R_{B3}$ = 250 k to 500 k

R_{B4} ≃ 165 k



Pulse stretcher:



R_F: forward resistance of 1N67 at .25 volts = 1600 Ω

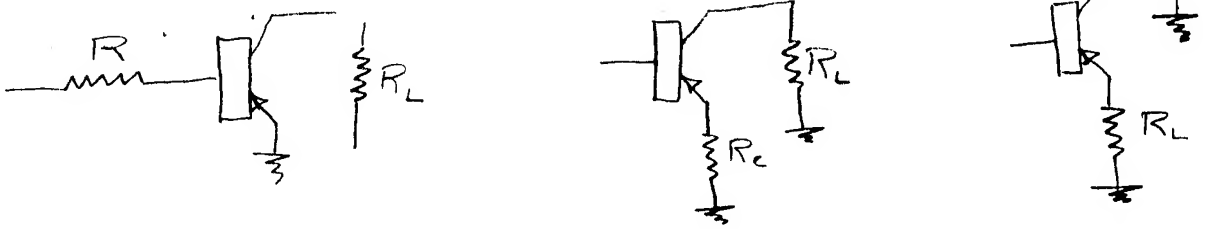
R_o output resistance of video amp = 1500 Ω

Capacity of pulse stretcher

$$W_o C = -\frac{1}{R_o + R_F}, \quad (W_o = 2\pi \times 380 \text{ KC})$$

$$\boxed{C = 130\ \mu\mu f}$$

(1) (2) (3)



APPROXIMATE

(1)	(2)	(3)
r_i: $R + r_b + \frac{r'_e}{1-a}$	$r_b + \frac{R_e + r'_e}{1-a}$	$\frac{R_L}{1-a}$
A_V: $-\frac{r_b + \frac{r_c}{1-a}}{R + r_b + \frac{r_e}{1-a}} \cdot \frac{a R_L}{r_e + r_b(1-a)}$	$-\frac{a R_L}{R_e + r_e + r_b(1-a)}$	1
$= -\frac{a}{1-a}\frac{R_L}{r_i}$	$= -\frac{a}{1-a}\frac{R_L}{r_i}$	$= \frac{1}{1-a}\frac{R_L}{r_i}$
R and thus r_i may be greatly increased without affecting the approximate formulas	the higher approximate formula has $(R_e + r'_e)$ appearing in the denominator of A_V. - Thus for large values of R_e, the voltage gain will be less.	as R_L is increased r_i reaches the limit of r'_e while A_V remains constant.

AES 12 June 1956

Shea 01962.63

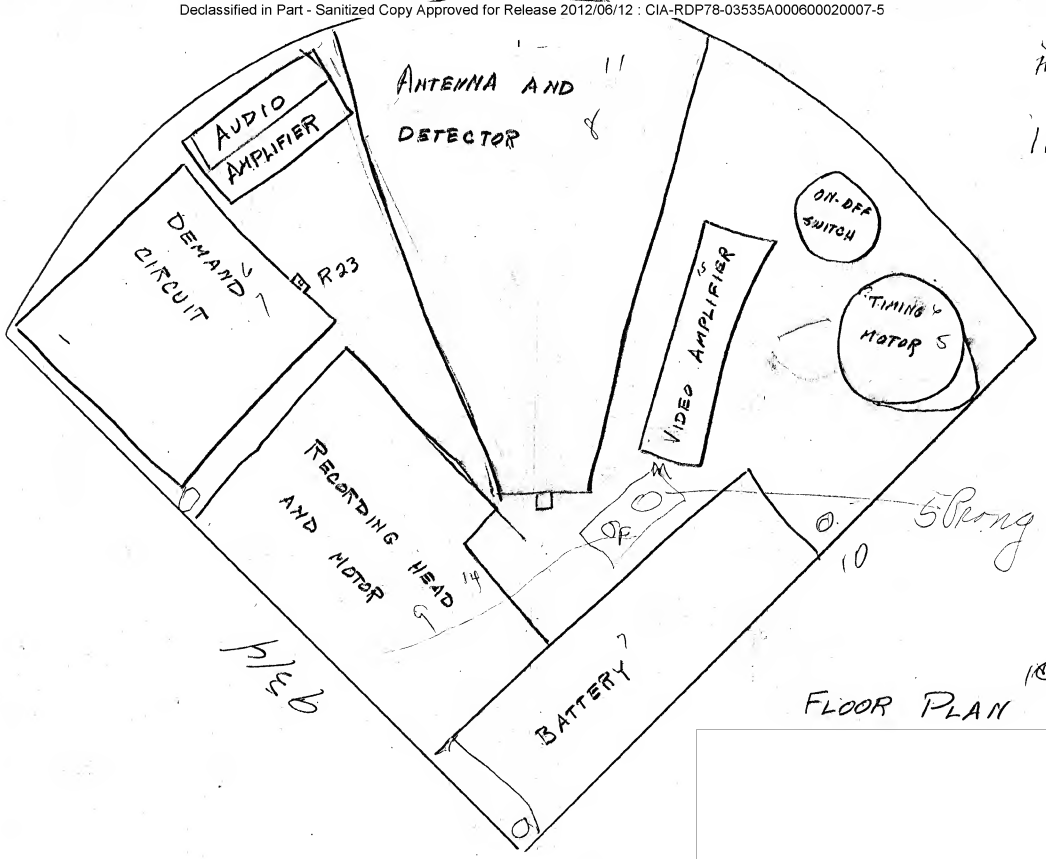
13 July 1956

PROPOSED IMPROVEMENTS ON DEMAND SYSTEM

The following improvements are suggested for optimizing the crysta l video demand receiver:

1. Incorporate Philco video amplifier and pulse stretcher for good short pulse response.

25X1



FLOOR PLAN

25X1

BIAS STABILIZED

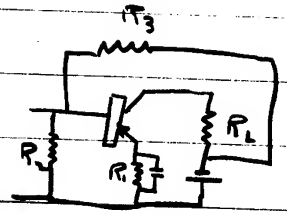
AUDIO AMPLIFIER

ACS

22 Feb 1956

I The stability factor (S) is given by Shea as:

$$S = \frac{1 + R_1/R_2 + R_1/R_3}{1-\alpha + R_1/R_2 + R_1/R_3}$$



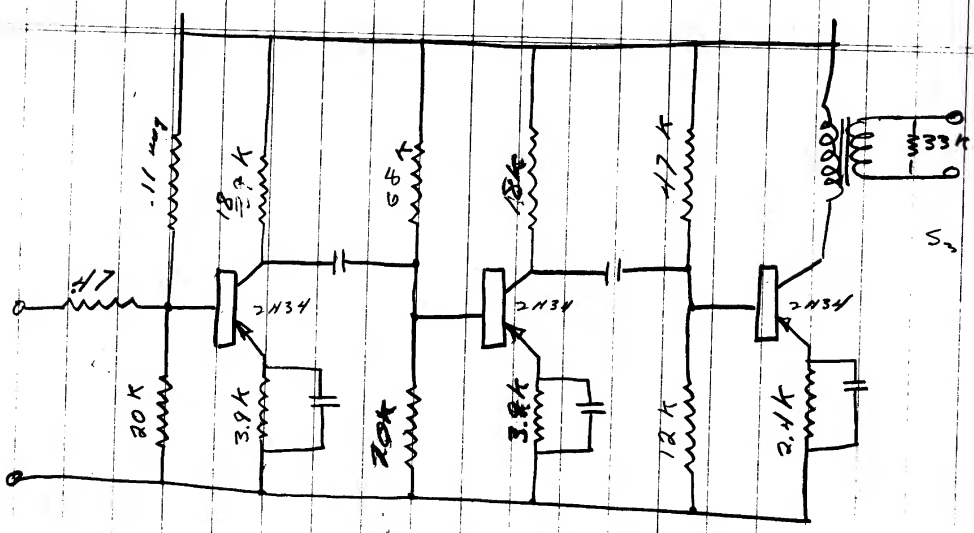
So for the circuit shown:

$\Delta I_\alpha / \Delta I_{co}$

Stage	Stability factor
1	4.8
2	4.53
3	4.53

II Measurements of gain vs temperature indicated that the values of bias resistance are much more critical during a change in temperature.

A change of the order of magnitude of a few degrees centigrade per minute is sufficient to cause a noticable decrease in gain (several dB).



$$S_1' = \frac{1.225}{1 + .196 + .035} = \frac{1.225}{.025 + .196 + .035} = \frac{1.225}{.255} = 4.8$$

$$S_1 \simeq 4.8$$

$$S_2 \simeq \frac{1 + \frac{3.9}{20} + \frac{3.9}{68}}{\frac{1}{40} + \frac{3.9}{20} + \frac{3.9}{68}}$$

$$S_2 \simeq 4.53$$

$$S_2 = \frac{1 + .200 + .051}{.025 + .200 + .051} = \frac{1.251}{.276} = 4.53$$

$$S_2 = 4.53$$